

**INTRODUCTION AND BACKGROUND**

Government of India as per letter number F.No.T.20015/24/2005-R had constituted a national task force to formulate the strategy for cancer control in India during the 11<sup>th</sup> five year plan. Cancer control prevention, early detection, human resource development, Dr. M. Krishnan Nair was appointed as the co-ordinator with the following persons as members of the Panel.

1. Dr. Pankaj Shah, GCRI, Ahmedabad
2. Dr. Sankaranarayanan, IARC, Lyon
3. Dr. Elizabeth K Abraham, RCC, Trivandrum
4. Dr. Partho Basu, CNCI, Kolkata
5. Dr. Shastri, TM, Mumbai
6. Dr. Harbans Lal Kapoor, Ex-Director, RCC, Shimla
7. Advisor, AYUSH
8. Dr. J. Leowski, SEARO, New Delhi
9. Representative of Cancer Patient's Aid Association
10. Representative of Indian Cancer Society
11. Director, Institute for Cytology and Preventive Oncology, Noida
12. Dr. Kusum Verma, AIIMS, New Delhi
13. NPO (Tobacco), Delhi
14. Chairman, UGC
15. Representative of Medical Council of India
16. Representative of Indian Medical Association
17. Dilip Mavlankar, IIM Ahmedabad

18. Director, NIHFW

19. Dr. Nene, Cancer Centre, Barshi

Dr. M.Krishnan Nair convened a meeting of the core committee member and some of the participants who attended oral cancer summit organized by the ICMR in Trivandrum on the 29<sup>th</sup> January 2006, 5.30pm – 10.00pm. The core committee members who attended the meeting were

### **Members**

Dr. Pankaj Shah

Dr. Shastri

Dr. Partha Basu

Dr. Rohini Premkumari

Dr. Sankara Narayanan

### **Participants**

Dr. Babu Mathew

Dr. Ramani Wesley

Dr. Ramadas

Dr. Alok Thakkar

Dr. Anil D'Cruz

Dr. Arun Kurkure

Dr. Bapsy PP

Dr. Bhattacharya G.S.

Dr. Chiplunkar S

Dr. Chainulu A.V.

Dr. Iqbal Ahamed M

Dr. Moni Abraham Kuriakose

Dr. Mulherkar R

Dr Parikh P M

Dr. Paul Sebastian

Dr. Radhakrishna Pillai M

Dr. Rajagopal M R

Dr. Rita Banerjee

Dr. Reena George

Dr. Sandeep Kumar

Dr. Shrivastava B M

In this meeting Dr. M. Krishnan Nair presented the National Task Force report on cancer control which he had prepared. This report was discussed in detail and the core committee approved this report for onward transmission to department of health and family welfare, government of India. The current scenario of cancer in the country was fully taken into account is as follows:

#### **CURRENT SCENARIO OF CANCER IN INDIA**

India has a National Cancer Control Programme, which was established in 1975-76. This has contributed to the development of Regional Cancer Centers (RCCs) oncology wings in Medical colleges and support for purchase of teletherapy machines. The District Cancer Control Programme was initiated but did not result in sustainable and productive activity. Leading cancer sites in various cancer registry areas are shown in Fig.1.

The present scenario is summarized as follows:

### ***Risk factors***

The cancer registry data reveals that 50% of the cancers in the male and 20% of the cancers in female are tobacco related and hence totally avoidable. In this connection we should remember that tobacco is used in different forms in the country and hence control strategies should address all these independently. The common cancers caused by tobacco are lung, larynx, urinary bladder, esophagus, pharynx all due to smoking tobacco, the mouth, tongue and lip due to chewing and smoking tobacco. The tobacco related cancer in female is still low in this country because women are mostly non smokers mostly, due to social and cultural factors. Even though several executive orders have been issued to control cigarette smoking no law has been enacted so far in the country controlling the use of the cigarettes or any of the other forms of tobacco. The impacts of other risk factors have not been clearly estimated but a high rate of cervical cancer is an indication of the sexual and reproductive risk factors in the Indian female.

### ***Cancer Prevention***

There is no uniform cancer prevention strategy for the entire country. Awareness programmes have been undertaken in a few places, but there is no uniform standardized Information, Education and Communication (IEC) strategy for cancer prevention. There is no education on risk factors, early warning signals and their management. Cancer screening is not practiced in an organized fashion in any part of India. There are sporadic attempts at opportunistic interventions and small-scale research studies for field interventions.

### ***Early Detection***

Early detection of 3 common forms of cancer such as oral, breast and cervix has been attempted by Government of India through a pap smear programme in combination with FW programme nationally and through District Cancer Control programme in all 29 districts in the country. Several state governments and RCCs have implemented state wide programmes like Kerala (Ten year action plan), Tamilnadu (Kancheepuram Cancer Screening Programme) and opportunistic programmes in social regions. Most of them except the RCC programme in Trivandrum did not produce designed results as the health service system could not support such activities due to deficiencies in health system management and non availability of human resources (cytologists / Pathologists) and absence of integration with multisectoral groups. In spite of limited financial inputs, the technology attempted was high and hence unsustainable. The programmes were conducted as academic exercises and were not part of the primary health care system. As such it only touched a small size of the population who were already covered because of their affluence and urban domicile. No national strategy was formulated before implementation of this theme which also led to its failure.

The commonest cancers in various registries are mouth, lung, esophagus, prostate, stomach, pharynx and larynx in the male and breast, cervix, ovary, mouth, esophagus and stomach in the female. Breast cancer is the commonest cancer in Mumbai and Thiruvananthapuram whereas cancer of the uterine cervix is the commonest female cancer in Chennai, Bangalore, Dibrugarh. Thyroid cancer is very common in females in Thiruvananthapuram and prostate cancer in males in Thiruvananthapuram.

It is interesting to note that more than 60% of the cancers in all registries occur in the age group 35-64 in males and more than 70% of all female cancers occur in that age group. Such data discloses the impact of cancer as a major public health problem in the most productive age group.

The cancer registry data in India reveals that about 20% of the cancers are diagnosed in a localized stage. The majority of the cases are diagnosed when the disease is regional (2/3<sup>rd</sup> of all cases). Disease with distant metastasis at the time of diagnosis is less than 10%. Disease extent at presentation is similar in all therapy centres. Prior treatment in the periphery is common in States where community oncology is well developed and where reasonable facilities are available for cancer treatment outside the tertiary centre such as in Thiruvananthapuram & Mumbai. The prior treatment rates for female cancers are high in Thiruvananthapuram. It is due to management of breast cancer in the periphery. In the case of the most of the male cancers except in Thiruvananthapuram prior treatment outside in major cancer centres was relatively few.

3.5-4.5% of cancers in all Indian registries is childhood cancer. The commonest 5 cancers in children are leukemia, lymphomas, CNS tumors, soft tissue sarcomas and renal tumors. All of them are curable and hence would demand specialized treatment facilities which are available only in metropolitan cancer centres. They also mandate good supportive and rehabilitative facilities which are not generally available in the country.

### ***Infrastructure for diagnosis***

Diagnostic infrastructure in the country is limited. Important early diagnostic facilities like cytology are available only in very few rural places (less than 10). This imposes a severe constraint in the detection and diagnosis of cancer in the periphery which leads to an exodus of patients to major cities even for this kind of service. Since the diagnosis takes place mostly in major cities the national cancer registry data gives an impressive picture of more than 90% microscopic diagnosis of cancer in the country. But we should remember that it represents only 5% of the cancers. Apart from this gap in the diagnosis, lack of cytological and pathological facilities and basic diagnostic investigations like x-rays, endoscopy and ultrasonography is also a constraint. An unestimated number of cancers should be vanquishing in rural areas without either diagnosis or treatment. This major gap has to be rectified for any successful cancer control effort.

### **Facilities for cancer treatment**

The three major modalities of treatment namely surgery, radiotherapy and chemotherapy are also grossly inadequate in the country both in terms of personnel and equipment especially in the semi urban and rural areas. This has forced the rural population to seek treatment in the urban areas which is geographically and financially inaccessible to them. To reach such facilities they are constrained to spend huge amounts of money mostly beyond their reach. This ultimately impoverishes them. Such constraints leave an unestimated number of cancer cases in the population either without diagnosis or treatment. If one looks at the location of the treatment units in the country the stark reality of inequitable access will become obvious. The current position on availability of treatment facility is as follows.

Cobalt Units	265
Linear Accelerators	70
Brachytherapy	120
Treatment planning units	140
Simulators	80
Radiotherapy centres	165 (Urban – 128)
Radiation Oncologists	650
Medical Oncologists / Units	110 / 32
Surgical Oncologists (qualified and unqualified) / units	150 / 45

On an average 50-60% of the patients are treated with radiotherapy, 20% with surgery and 25-30% with chemotherapy (as primary treatment or in combination). Multidisciplinary therapy, tissue conservation, protocol driven treatment of supportive care are only available to 5% of cancer patients treated in RCC, Oncology wings of Medical colleges or tertiary level cancer centres in private. All the rest receive just radiotherapy of a modest standard with or without chemotherapy. In a number of places instead of plain and simple cost effective palliative care, pharmacy company driven palliative chemotherapy has taken roots leading to heavy financial drain to the individuals and governments.

### **Pain relief and Palliative care**

Oral morphine for cancer related pain is available currently only in very few parts of the country. Awareness regarding the cancer related pain is lacking both in the profession, community and patients. There is a serious limitation of manpower professionals and NGOs in providing palliative care.

## Finances

The funds for the cancer programme are mainly from the Government and needs to be augmented. Private initiatives are few and are unlikely to cater to a large population across different socio economic strata, as it is often not a financially viable venture.

## Coordination

All elements of cancer control, from surveillance to palliative care, are not linked and coordinated.

## Burden of cancer

Oral, breast and cervix cancer together constitute 40-50% of the cancer burden in India. Oral cancer is an avoidable cancer and can also be detected early as it has long precancerous stage. The examination method is simple and if the individual has awareness he will certainly submit for the same. Clinical breast examination followed by FNAC or biopsy is easy and simple methods for early detection of breast cancer. Cervical cytology at the age of 40 years will prevent further disease in 2/3<sup>rd</sup> of women and has a high sensitivity and specificity. All the above cancers if detected early and treated optimally and almost immediately can result in higher rates of cure.

**Load of Major Cancers in India (2001)**

Site	Male	Female	Total
Lip, Oral Cavity	39,000	31,000	70,000
Pharynx & Larynx	53,000	14,000	67,000
Esophagus	31,000	26,000	57,000
Stomach	35,000	16,000	51,000
Lung	34,000	7,000	41,000
Breast		80,000	80,000
Cervix		100,000	100,000

## Approaches to cancer control

The four principal approaches to cancer control are:

**Prevention** means eliminating or minimizing exposure to the causes of cancer and includes reducing individual susceptibility to the effect of such causes. This approach offers the greatest public health potential and the most cost effective long term method of cancer control. Tobacco is the leading single cause of cancer worldwide and in the fight against cancer every country should give highest priority to tobacco control.

**Early detection.** Increasing awareness of the signs and symptoms of cancer contributes to early detection of the disease. Where tests for cancer of specific sites are available and facilities are appropriate, screening of apparently healthy individuals can disclose cancer in early or precursor stages, when treatment may be most effective. Early detection is only successful when linked to effective treatment.

**Diagnosis and treatment.** Cancer diagnosis calls for a combination of careful clinical assessment and diagnostic investigations. Once a diagnosis is confirmed, it is necessary to ascertain cancer staging to evaluate the extension of the disease and be able to provide treatment accordingly. Cancer treatment aims at curing, prolonging useful life and improving quality of life. Treatment services should give priority to early detectable tumours and potentially curable cancers. In addition, treatment approaches should include psychosocial support, rehabilitation and close coordination with palliative care to ensure the best possible quality of life for cancer patients.

**Palliative care.** In most of the world, the majority of the cancer patients present with advanced disease. For them, the only realistic treatment option is pain relief and palliative care. Effective approaches to palliative care are available to improve the quality of life for cancer patients.

India requires a cost effective cancer control strategy with maximum reach, coverage and equity. A strategy based on health promotion, professional training, diagnosis and treatment with community participation and carried out through the existing health services with minimal health system modifications would meet these requirements.

## LIMITATIONS AND STRENGTHS OF PREVENTION & EARLY DETECTION

### Prevention

Limitation	Strengths
➤ No built in health promotion activity with regard to tobacco, diet, physical inactivity and reproductive and sexual life styles	➤ Women do not smoke
➤ No professional education on risk factors of cancer and its prevention	➤ 20% of women who use tobacco, predominantly use oral tobacco
➤ Current health system constraints and excess of bureaucracy	➤ Children do not use tobacco except lately (pan masala)
➤ Lack of linkages with other departments, NGOs and PRIs	➤ Only 40% of adults are smokers
	➤ Indian tobacco act has been passed
	➤ School education covers 70% of the children which can be used for

<ul style="list-style-type: none"> <li>➤ Absence of a coordinating mechanism for primary prevention in a sustainable form for a manageable population</li> <li>➤ Absence of Cancer Technical Group at the state level/district level</li> <li>➤ Absence of a suitable delivery mechanism with widespread participation</li> <li>➤ No community participation in health activities</li> </ul> <p>Cheap beedi's which are equally harmful as cigarettes available in plenty</p> <ul style="list-style-type: none"> <li>➤ Pan masala introduced during the last 20 years has caught up as a habit across the community including children</li> <li>➤ Implementation of Indian tobacco act has not been pursued by the home ministry vigorously</li> </ul>	<p>educating school children or tobacco risks, formally and non formally</p> <ul style="list-style-type: none"> <li>➤ There are several women groups and NGO who could be utilized to educate women on harmful nature of tobacco so that they could transmit such information to husband, relatives and children</li> <li>➤ Family and community bondages in India are still strong in the rural communities. This is could be used to make tobacco in all form socially unacceptable</li> <li>➤ Making use of India's strong civil service, if there is political commitment the provisions of the Indian tobacco law can be easily implemented and enforced</li> <li>➤ Prasar Bharathy which has a reach of 70% of the population could be used to educate people on the harm of tobacco</li> <li>➤ Availability of RCCs and Oncology wing of medical colleges for cancer technical advice</li> </ul>
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### **Early Detection**

<ul style="list-style-type: none"> <li>➤ Health system defects</li> <li>➤ Absence of clear cut definition of the role of health service system in delivery of early detection of cancer</li> <li>➤ Non availability of cytotechnologists and pathologists</li> <li>➤ Absence of linkage with other facilitators like other departments and organizations NGOs and PRIs</li> </ul>	<ul style="list-style-type: none"> <li>➤ Existence of RCC which can             <ol style="list-style-type: none"> <li>a. play a major role in human resource development</li> <li>b. help preparation of the project document and expand CTG programmes</li> <li>c. Monitor the early detection centres and their activities</li> </ol> </li> </ul>
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| <ul style="list-style-type: none"> <li>➤ Mismatch between resource availability and technology leading to unsustainability of programme (Pap smear programme in Mumbai)</li> <li>➤ Non availability of a flexible and dynamic organization which can work differently from the bureaucratic health department and establish linkages with other partners</li> <li>➤ Non availability of a cancer technical group to advise the health department on appropriate strategies and action programmes</li> <li>➤ Inability of the health departments to use NGO, PRIs, media and other groups as partners in the programme due to bureaucratic constraints</li> <li>➤ Lack of co-operation from the health service personnel presumably due to lack of professional re-orientation</li> <li>➤ A channel for delivery of early detection not identified</li> <li>➤ No co-ordinating agency for cancer control at the district or sub district level</li> <li>➤ No cancer technical group to give guidance</li> <li>➤ None of the national media have been made responsible for propagation of early warning signals of common cancer</li> <li>➤ Diagnostic facilities for early detection of cancer are restricted to urban areas</li> <li>➤ Non identification of clear cut disease targets for control</li> <li>➤ No project document for early cancer detection strategy and action programme</li> </ul> | <ul style="list-style-type: none"> <li>➤ RCC and Medical college pathology departments which can train personnel in cytology</li> <li>➤ District level administration under the district collector who can coordinate all cancer related activities through his authority</li> <li>➤ State institute of health and family welfare which can also be used along with RCC to impart professional training for health personnel</li> <li>➤ PRI which can work along with health department at the grass root level</li> <li>➤ Prasar Bharathy, (government controlled media) can contribute immensely in health promotion programmes.</li> <li>➤ Cancer control programme approved as a national policy</li> <li>➤ Health system changes ordered in certain states which make health personnel responsible for non communicable disease control as well (Can be a model)</li> </ul> |
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- No sensitization of senior officials, politicians, public men and media personnel
- No professional training of health personnel to empower them to do cancer detection as part of their routine work
- No formulation of staff schemes and equipment for stream lining early cancer detection centres
- Non availability of dedicated space equipment, lab and personnel for early detection – early cancer detection centre at district or sub district level
- Non availability of IEC material for such activities
- Non availability of cytologists and pathologists
- No sustainable human resource development effort of different categories
- No identification of key trainers

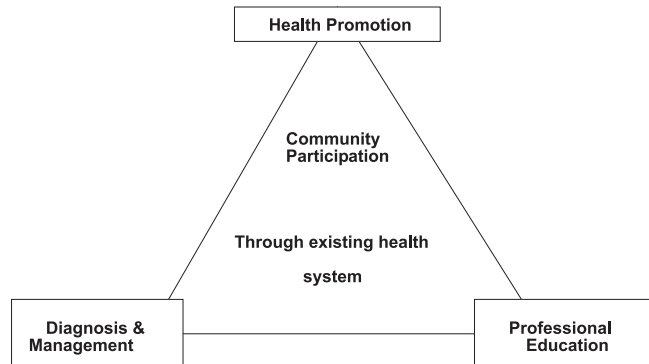
### **GOALS OF CANCER CONTROL IN INDIA**

- i. Devising methods to avoid 50% cancer in men and 20% cancer in women which are tobacco related by creating awareness about harmful effects through an anti-tobacco action programmes involving HRD of student volunteers, inter-sectoral personnel, medical personnel and lay public;
- ii. Achieve Early Clinical Diagnosis (ECD) of oral, cervical and breast cancer through propagation of warning signals, screening wherever feasible and by providing motivation to undergo CRPE and extending laboratory support through a district level early cancer detection programme and early detection centre;
- iii. Widen the scope of therapy by introducing minimal therapy for early cancer at the periphery, by introducing comprehensive multi disciplinary protocol based therapy

hand in hand with early detection in RCC and Oncology wings of medical colleges and palliative care at the district level;

- iv. Widen the coverage and reach of palliative care by introducing it at district level initiating HRD and Morphine supply. IP care and home care service with the support of NGOs.

Possible approach to cancer control in India



Suggested strategy for cancer control. Being economically viable with maximum coverage. Education, professional training, diagnosis and therapy are the major pillars of the strategy. Community participation and full utilization of the existing health system helps it to have the maximum reach.

## TARGETS 2012

### General

In order to achieve the targets outlined below certain general measures have to be implemented.

- ↗ Preparation of a cancer control plan at the national level, state level and district level taking into consideration of socio cultural factors, economy, health infra structure, health priorities and availability of human resources.
- ↗ Formulation of district cancer societies which will be the channels for delivery of cancer control at the grass root level.
- ↗ Constitution of cancer technical groups in as a collaborative effort of the state and the regional cancer centre or medical college to function as a resources centre for preparation of the cancer control plan and human resource development.
- ↗ Organization of the community oncology departments in regional cancer centres, major private cancer institutes and oncology wing of medical colleges which will be the resource centre for district cancer control programme and its monitoring.

- ↪ Organization of cancer registries attached to all regional cancer centres to accrue country wide database on cancer and to monitor cancer morbidity.

### **Prevention**

- ↪ Ensure that use of tobacco among women and children remain status quo through formal and non formal education for children, advocacy programmes for women.
- ↪ Reduce tobacco habit among adult habitués by 20-25% by establishing Quit tobacco clinics in all panchayaths wherever DCCP exists.
- ↪ All Government controlled public places are declared tobacco free (legislation)
- ↪ Price of tobacco products is doubled in 5 years (legislation)
- ↪ Extensive propagation of health promotion messages in government electronic media

### **Early detection**

- ↪ Cancer of the oral cavity, breast and cervix are identified as targets for early detection and control
- ↪ Early warning signals of these cancers are propagated widely through national electronic media
- ↪ Diagnosis of localized disease for these three common forms of cancer increase from 20 to 40%
- ↪ At least 50% of the districts in India have district cancer control programmes (DCCP) with cytology facility

### **Palliative care**

- ↪ All RCCs and oncology wing of medical colleges have a pain relief and palliative care programme with morphine availability
- ↪ All medical colleges have pain relief and palliative care programme with morphine availability
- ↪ All DCCP have pain relief and palliative care programme with 2 beds and morphine availability

### MILESTONES TO ACHIEVE THE TARGET

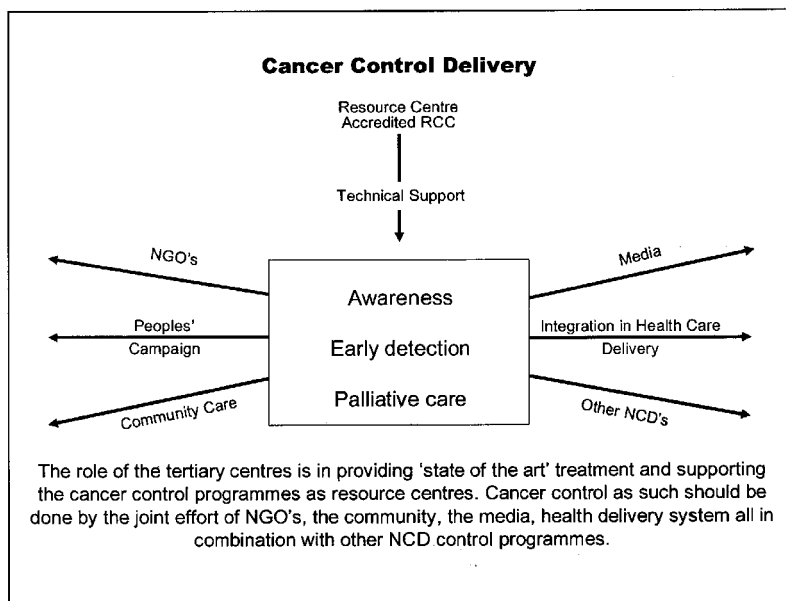
1. Government orders to be issued within the **first one year**.
2. Community oncology departments to be setup in all RCCs and oncology wing of medical colleges within the **first one year**.
3. District cancer control plans have to be prepared within the **first one year**.
4. Professional training for health personnel should be started in the **first year** and completed within the **first three years**.
5. District cancer societies have to be established in **10% of the districts in India within first two years, 20% of the districts in the third year, 40% of the districts in the fourth year and 50% of the districts by the end of the fifth year**.
6. Preparation of all IEC materials should be completed within the **first two years**.
7. 100 cytotechnologists each have to be trained **during the first two years** and 200 cytotechnologists have to be trained **during the 3 subsequent years**.
8. Quit tobacco clinics have to be started in **10% of the public offices in the first year, 30% in the second year, 50% in the third year, 75% in the fourth year and 100% within five years**.
9. One lesson in tobacco has to be introduced to middle school children within **the first two years**. Another lesson has to be introduced at the pre-degree level within the **first 4 years**.
10. Tobacco legislation on the basis of the FCTC and Indian tobacco act has to be initiated **from first year** and progressively implemented **within 5 years**.
11. Smoking in all public places should be progressively banned and complete ban achieved at the **end of 3 years**.
12. Cancer registries one each in each RCC should be started in a rural area.

### DELIVERY MECHANISMS OF CANCER CONTROL

1. In order to provide **cancer control to the population in areas of prevention, early detection and palliative care** we have to ensure
  - Political commitment
  - Social commitment
  - Multisectoral co-operation

- Technical guidance
- Capacity and committed institutions.

If such services are to reach the grass route level apart from utilizing the existing health infra structure, the participation of the community, NGO's, Panchayathi raj institutions, media, people's campaigns preferably integrated with other institutional programmes are all essential. The health department by themselves because of the bureaucratic strangle holds will not be in a position to carry out such a programme.



There are 4 methods by which the benefits of cancer control can be channeled to the community.

1. Joint State level cancer control programme of Government and RCC (Ten year action plan of RCC, TVM) a senior minister as chairman (even the Chief Minister as done in Kerala) for implementation of the 10 year action plan. Since all responsibility was vested with the RCC, there was perceptible reluctance on the part of government departments in co-operating with this programme. Finances was a major problem as the RCC has to set apart its resources which again was highly resented. Because of limited financial resources, the capacities of RCC had to be stretched to the point of breakdown. It was also felt that to deploy highly trained specialists in the periphery for mundane activities such as ECD was a waste of resources. Under such condition this programme was hard to sustain. May be with certain modifications and financial and human resources it may work.

2. State level cancer control programme with technical support from the RCC and run by an autonomous society of the health department with the health minister as chairman on DCCP model.
3. District level cancer control programme (DCCP) with the District Collector as Chairman operating with a district cancer society. If cancer control is to be successful it has to reach the people. The best channel to take it to the periphery and to the people is the district level administration as it has experience with several such programmes. But if the service delivery is kept purely within the government domain it may not work because of various bureaucratic constraints. Hence with active participation of district level departmental machinery (general administration health, local administration, education and social welfare) and participation of Panchayathi Raj institutions and people's representatives, a district level society has to be formed with the Collector as Chairman, DMO as vice chairman and the Medical Officer of the District Cancer Programme as secretary. Such a society will strengthen the cancer control effort by improving the capacity and expansion of infrastructure. This society will finally become the channel for delivering cancer control to the periphery in a sustained manner and institutionalize the same. The organization formed by the society for its activities will be called the District Cancer Centre (DCC). Hopefully all districts in India will have one DCC each.
4. As a wing of District Hospital under superintendent. Lack of authority for the superintendent on the health staff is a negative point.

It is presumed in this report that the cancer control in India will be delivered through the District Cancer Control societies and hence will be mentioned on several reasons in the text below. In India the institution that could possibly deliver cancer control in an equitable fashion to the population appears to be a district level organization attached to the district hospital mutually extending cooperation. Since district cancer control programme would involve interaction with various groups mentioned in the earlier para, administratively, it will be better to keep them as an autonomous society under the district collector. Such societies can be free of bureaucratic constraints and can be expected to have a flexible and dynamic work culture. They will also have financial sustainability as they could receive grants not only from government but also will be free to mobilize funds for themselves. As district collector is the chairman of the society he can command multisectoral and NGO cooperation for the performance.

## **2. Formation of Cancer Technical Group**

To provide technical guidance for the cancer control programme a Cancer Technical Group will be formed in each state. The CTG will take care of the technical aspects in implementation of the programme. The experts should be drawn from the Oncology

Wing (OW) of Medical College, RCC or Private Cancer Centre (PCI). The Chairman of Cancer Technical Group will be a Senior Professor of Oncology in one of the above institutions who shall also be a member of Governing Body and managing committee of the local programme.

### Functions of CTG

<ul style="list-style-type: none"> <li>oversee the development and revision of the written programme plan;</li> <li>assume responsibility for implementation of the plan;</li> <li>coordinate the work of all agencies that can contribute to cancer control;</li> <li>oversee the systematic development and coordination of specific cancer control activities, such as prevention, early detection, treatment and palliative care so as to ensure the best use of available</li> </ul>	<ul style="list-style-type: none"> <li>resources for the whole population;</li> <li>oversee public education and participation;</li> <li>oversee professional education and development;</li> <li>identify and recommend each priorities;</li> <li>forecast future trends and coordinate the strategic development of health services, the health system, and the training and supply of health professionals;</li> </ul>	<ul style="list-style-type: none"> <li>recommend priorities for the investment of additional resources;</li> <li>develop a communication strategy;</li> <li>oversee the information systems;</li> <li>oversee the programme evaluation process, and implement corrective changes as needed.</li> </ul>
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### 3. Capacity Building

Capacity building for cancer control is one of the major priorities of a successful cancer control programme. Through suitable strategies and training programmes human resources can be mobilized for prevention and early clinical detection activities from the community, NGOs, youth organizations, multi sectoral groups, professional organizations etc. Utilisation of such man power will give cost effective and efficient as they will be more committed.

The categories trained and purpose of training are detailed below

Categories of Trainees	Purpose
NSS Volunteers	Anti-tobacco education programmes
Scouts and Guides	Tobacco Free Homes / ECD
Parent Teachers Association, members, scouts and guides, masters and captains, senior public men, teachers	School education on anti-tobacco programmes / ECD
Educated Village Youth Volunteers (VCCP Volunteers)	Anti-tobacco education, education of early warning signals, motivation for physical examination, referral for therapy and follow-up and Pain Relief and Palliative Care

Religious Personnel and workers	Anti-tobacco programme, propagation of Warning signals, technical breast examination, oral examination
Elite social organisation	Anti-tobacco programmes, propagation of warning signals, financial support to NCCP
Media personnel	Appropriate publicity for NCCP
Other inter-sectoral groups	All activities
Other system doctors	Anti-tobacco activities, early detection of Oral and breast Cancer

Technical personnel required for early cancer detection are medical professionals and cytotechnologists of which the cytotechnologists are more critical and least available. The cancer control programme in India will never take off if this aspect of human resource development is ignored. Immediate need is to train at least 200 cytotechnologists and 200 cytotechnicians annually. A programme could be started by the Indian Academy of cytology in all medical colleges and RCCs for this purpose with the help of departments of pathology. The other medical professionals would need only short term training which can be done in a RCC or oncology wing of medical colleges or by the cancer technical group in the districts.

Category	Subject
Multipurpose Health Workers	Health Education, motivation for cancer screening, collection of Pap Smear, visual inspection of Cervix and teaching of oral cavity and breast self-examination
Cytotechnologist	FNAC and Pap Smear
Cytotechnician	Pap smear, VIA, Cervicospopy and staining of cytology smears
Pharmacist	Narcotics Management
General medical practitioner	Cancer related physical examination (CRPE), Cervicospopy, biopsy, FNAC and management of pre-cancers, Palliative care
Surgical specialists	CRPE, Cervicospopy, FNAC, biopsy, management of early oral, breast, skin and thyroid cancers
Gynaecologists	CRPE, cervicospopy, colposcopy and Management of advanced dysplasias and early cancers

For overall cancer control several groups of clinical specialists (Medical, surgical, paediatric and radiation oncologists, registry personnel, epidemiologists, community oncologists, research scientists) would be required for successful implementation. The RCC's will have to be mandatorily entrusted with responsibilities of training of such personnel and for providing the key trainers for community programmes.

#### 4. Overall matrix of cancer control

The overall strategy for cancer control can be as in this matrix diagram (Fig. 5) in which the domain, the cancers to be included the objectives, methodical issues of strategy and designated agencies are identified. Such a strategy matrix will ensure variety of domains, ensure appropriate processes, inputs, outputs and stakeholders. This matrix will also ensure that there is no overlap in functions and processes. In order to implement this strategy individual items in the matrix may have to be strengthened with capacity and infrastructure.

Domain	Cancers	Objectives	Strategy	Agencies
Primary prevention	Tobacco related Cancers	Reduction in incidence of TRC	Tobacco control/cessation	NGOs, Local Govts, Schools etc
Screening	Cervix	Screen eligible women	One smear at the age of 40 yrs	Health services
Early detection	Oral/Breast/ Cervix	75% of cancers in early stages	OSE/BSE/CBE. Visual inspection Diagnostic support	Health services/ NGOs
Treatment	Common cancers	EBM without delay and prompt referrals	Training/ Guidelines/ Infrastructure	RCC Secondary level hosp (Private or public) Med Coll.
Palliative Care	All advanced cancers	Pain and symptom relief	Oral morphine availability Training	PHCs/ NGOs Community

### ACTION PLAN

#### Prevention

Our country still has a low rate of cancer. This is because almost 60% of the population (women and children) do not use tobacco, as the overall structure of population is still young with low rates of cancer and as the dietary habits are still conventional. The attempt of the cancer control programme should be to maintain these cancer sparing life style of the population and further reduce the cancer burden especially tobacco induced by activities which will bring down the tobacco habit. Quit tobacco clinics, tobacco education to women and children, community action to make tobacco habit socially unacceptable and government action to limit the availability of tobacco products and smoking places would appear to be the most appropriate strategy for primary prevention.

### **a. Quit tobacco clinics**

Such clinics should be initially started in all public and private hospitals and messages displayed in bus stations and railway stations. Later on it should be extended to all public and private officers, factories and education institutions.

Such clinics will be run by trained councilors who may be multi-sectoral volunteers, teachers, educated lay public or health personnel, doctors, nurses and technicians in cardiovascular and respiratory medicine. All the councilors should be non tobacco users.

Concurrently with the establishment of the clinics institutions where such clinics are present should be declared as 'tobacco free'.

Allotment of space for locating such clinics should be made a mandatory legal requirement under the Indian tobacco act. The councilors should be trained in the training centres by the institutional authorisation. One such training centre preferably in the State Institute of Health and Family Welfare or Regional Cancer Centre or Oncology wing of Medical College should be available in smaller states and 2-3 in larger states. Such training centres will be headed by a master trainer. Since a large number of such councilors will be required, at least 200 such persons should be trained every year. For all licensed councilors of the quit tobacco programme an honorarium of Rs. 500/- may be paid monthly.

### **b. Tobacco education to children and woman**

The purpose is to keep children and women out of tobacco habit as they are at present. Tobacco education to children and women would help them to motivate tobacco users in the family to quit tobacco. They would be useful channels for motivating non smokers to stay like that.

#### **Children**

#### **Tobacco education could be given formally or informally.**

**Formal Education:-** Repetitive tobacco lessons in middle and high school and later in the college during the first 2 years could change their attitude to tobacco especially when they learn about the harms of the tobacco. Such knowledge about tobacco could empower them to motivate older people in the family to quit or not initiate tobacco. This would also help them to withstand peer pressure to start tobacco habit.

**Non Formal Education:-** Student groups are made use of, such as scouts, guides, student unions and NSS volunteers. Making use of such groups 1.25 lakhs homes in Kerala have been converted as 'tobacco free homes'. NGO driven school campaigns are also extremely useful in keeping young adults off tobacco. In Kerala 62 lakh children were given the tobacco education in 4,500 schools (Ten year action plan of Kerala).

## **Women**

The main purpose is to motivate them to remain as non tobacco users. Women could be the best motivators against tobacco because of her status in the family. Both adults and children would listen to her to avoid tobacco especially when it is supported with knowledge argument. This is especially useful in states where women are literate such as Kerala, Maharashtra, Punjab, Haryana and North –eastern states.

### **c. Community Participation**

Community can also play a very important role in the control of tobacco.

Sensitization of community leaders would go a long way in making tobacco habits socially unacceptable. The communities should dissuade people from serving tobacco in social functions. This will make tobacco use a socially unacceptable habit.

The community could help in monitoring tobacco use among its members and repeatedly warn them on its harmful effects. They can also maintain a list of erring members and bring them to public gaze so that they will be forced to stop the habit. The community should try to give wide propaganda to mishaps such as illness or death due to tobacco among the community members. Community can also ensure that tobacco is not served to children or sold to children by shopkeepers. They could also conduct awareness campaigns and advocacy campaigns against tobacco. For all the above activities community should form a tobacco action group consisting of non smokers from the community. Such committees should have stakeholders as members such as prominent individuals, panchayathi raj personnel, intersectoral workers and their union leaders, religious leaders and people's representatives.

### **d. Government**

The framework convention for tobacco control (FCTC) and Indian tobacco act 2003 should be implemented stringently.

Reduce the availability of tobacco products by regular price increase and tax increase. This could also be done by reducing the tobacco production and processes and through diversion of land for other crops.

The regular price increases can be justified if government provides health support to tobacco workers and patients with tobacco related illnesses. The price increase can be a legal procedure. Government should also ban duty free import of tobacco by international travelers.

Government should ban use of tobacco in public places to ensure the rights of non smokers for fresh air and ensure punishments for law breakers.

Evaluation of tobacco control programmes can be done at the community level state or national level. The state level estimates of tobacco related diseases especially cancer and cardiovascular and respiratory disease could be an indicator. (Further reading National Cancer Control Programme Manual November 2005)

### **Early Detection**

Early detection of cancer should become a responsibility of the existing health system and the community. Professional education involving all health personnel and utilization of community volunteers and community forums to propagate the early warning signals of cancer would enhance early detection of 3 types of cancers oral, breast and cervix and ensure appropriate treatment at an early stage for patients suffering from these cancers. Early detection strategy used in the west is highly personnel and technology intensive and hence expensive. As such it will be unaffordable to us. (Refer to the manual of cancer control for further details)

India should concentrate on oral, cervical and breast cancer which together constitute 50% of cancer burden. All the three are easily detectable at early stages with affordable low technology methods. All the 3 are curable if detected early.

### **Oral cancer**

Cancer in the oral cavity and pre-cancerous lesions can be detected early by self examination or clinical examination of the oral cavity. Self examination of the oral cavity is possible with a mirror in good light. It should be done by all tobacco habituates once in 3 months. Any whitish, reddish or ulcerative lesion in the oral cavity should be subjected to a physician examination.

There should be facilities for opportunistic examination of the oral cavity in all hospitals and dental clinics. All general practitioners should given professional education for examination of oral cavity, take biopsies and refer patients for diagnosis and treatment. Under DCCP all health professionals are to be trained in early detection of oral pre cancer and in referral to District Early Clinical Detection Centres for diagnosis and management.

### **Key Messages**

- Oral cancer is preventable and curable if detected early
- Tobacco chewing is the most important risk factor
- Health professionals can
  - Examine oral cavity of all patients with history of tobacco use
  - Advocate cessation of tobacco and alcohol use

- Teach oral self examination
- Ask clients to report to the health centre if they spot any lesion that looks suspicious
- Ensure prompt referral of patients with suspicious lesions
- Provide pain relief and palliative care

In the early detection of oral lesion larger man power could be mobilized if professionals practicing Indian systems of Medicine are also trained.

### **Breast cancer**

Commonest cancer in the females in India. This cancer can be detected in early stages by screening (mammography or early clinical detection such as clinical breast examination and self breast examination). Mammography screening is not practicable in country like India because of lack of resources and infra structure. It is beyond the reach of most of the population and hence has not been attempted except in clinics.

The most important strategy for early detection of breast cancer is creation of breast awareness. Breast awareness is creation of familiarity to one's breast. Every woman should know how her breasts look and feel so that she is able to notice any unusual change. To achieve this, every woman must examine her breasts from time to time. There need not be any set manner for doing this. The method of self examination may vary but it definitely helps to create breast awareness & detection of early lumps. All lumps in the breast have to be subjected to FNAC examination or an incision biopsy or excision biopsy if the lump is very small. It is preferable to examine the breast once a month, 10 days after the menstrual period with the flat of the hand.

Every woman should be aware of the following signs:-

- A change in size
- A nipple that is pulled in or changed in position or shape
- A rash on or around the nipple
- Discharge from one or both nipples
- Puckering or dimpling of skin
- Lump or thickening in the breast
- Constant pain in the breast or armpit

Any of the above changes should immediately to be brought to the attention of doctor

and should get examined by him or one of the personnel who is trained in clinical breast examination.

The following personnel can be trained in clinical breast examination, nurses, teachers, anganwadi workers, nuns and female office workers.

### **Key Messages**

- Breast cancer is curable if detected early
- Health professionals can -
  - Create 'breast awareness' among clients and ask them to report if a lump is felt
  - Offer clinical breast examinations to women aged 40-69 years
  - Reassure – all lumps are not cancer
  - Ensure prompt referral and appropriate management
  - Provide pain relief and palliative care

### **Cervical Cancer**

Second commonest female cancer in India. This disease has a long pre cancerous stage and hence the changes are discernable even 5-10 years before the actual cancer.

Pap smear is the most reliable method to make early diagnosis of cervical cancer. Well organized pap smear programmes in population groups have brought down considerably the mortality from this cancer. Unfortunately non availability of personnel to carry out pap smear examination covering majority of the population and further manage and follow up the detected lesions have stood in the way in a universal pap smear programme in our country.

Alternately the strategy used in Kerala could be used in the rest of the country. This is done by creating awareness about the symptoms of early cancer of the uterine cervix and providing diagnostic facilities through professional education of the existing health delivery personnel. Availability of gynaecologists in the periphery was a favourable factor in the conduct of this programme.

To conduct the pap smear programme the most important professional required is the cytotechnologist. Their supply is very limited in most of the States. This imposes a major constrain in the universal use of pap smear.

Studies have demonstrated that pap smear even if undertaken less frequently can reduce the mortality of cancer considerably if majority of the population are covered in the scheme. If the coverage is more than 80% even one pap smear in women between the

age of 35-45, will reduce the cumulative mortality to 65% avoiding deaths in 2/3<sup>rd</sup> woman due to this cancer. Hence one strategy which our country could follow is once in a life time pap smear at the age of 40 as part of the district cancer control programme. In a district with 10 lakh women the eligible numbers every year will be 56000/PA.

The alternate strategies to pap smear are unaided visual inspection, visual inspection with acetic acid and visual inspection with Lugol's iodine. All screening procedures demand facilities for colposcopy, cryosurgery and leap for management of abnormal lesions detected by any of the above.

All malignant lesions detected through any of these methods should be referred to radiotherapy centres having both brachytherapy and teletherapy. A few Stage I A cases may require surgery. Such patients may be referred to highly specialized centres.

### **Key Messages**

- Cancer of the uterine cervix is curable if detected early and treated promptly
- HPV infection is the etiological agent for cancer cervix
- Early detection is possible through opportunistic examination of women attending outpatient clinics.
- Screening of asymptomatic women through an organized approach can reduce the incidence of and mortality in cervical cancer
- Health professionals can
  - Stress the importance of genital hygiene
  - Ensure prompt treatment of genital infections
  - Conduct opportunistic check up of women attending out-patient clinics
  - Ensure prompt referral and appropriate treatment
  - Provide pain relief and palliative care

### **Motivation for diagnosis and treatment**

Once a cancer has been diagnosed a lot of motivation would be needed to send the patient to diagnostic and therapy centres. The main reason why the patient may not go for the treatment is the firm belief that cancer is incurable. In the public education the curability of cancer should be highlighted convincingly and sufficient information should be given regarding diagnostic procedures and probable treatment. Patients also have to be assured that there won't be financial barriers for accessing treatment.

## Palliative care

Palliative care is the active total care of patients whose disease is not responsive to curative treatment. Control of pain, of other symptoms and psychological, social and spiritual problems is paramount. The goal of palliative care is achievement of the best possible quality of life for patients and their families. Many aspects of palliative care are also applicable earlier in the course of the illness, in conjunction with treatment. Palliative care extends, if necessary to support in bereavement. It is a joint effort of cancer control programme and local NGOs. The medical officer in the DCC along with one nurse shall be responsible for the palliative care services at the district. Oral morphine should be available in the DCC. Two beds should be set apart for palliative care in the district hospital. If possible a home care team should also be organized by willing surgeons and nurses in the district hospital.

In India palliative care is very important as more than 80% of the patients do not get cured as a result of late presentation, inadequate diagnostic facilities and the untreatable nature of the cancer. For them and their families palliative care could offer pain relief, symptom relief and good quality life. Since the need is of unimaginable proportion only through government, non governmental, community and people's participation that this issue can be resolved. A mechanism should be evolved to extend palliative care to all needy persons and their families with the availability of drugs. The section on palliative care in Manual for palliative care, NCCP, Nov. 2005, Published by the Director General of Health Services, Ministry of Health and Family Welfare, Government of India will give the directions for organizing a network of palliative care units in our country and possible linkages it should have with different institutions.

## Operational Aspects

The operational details have to be clearly worked out taking into account on the sceneries of the district, socio-economic and cultural factors and educational level. The following is a model which can be adapted in any district in India with appropriate changes as the local situation may demand.

DCC will be coordinating agency of the nodal centers for public education, early detection, therapy augmentation, pain and palliative care, surveillance and evaluation in the district.

In each district 4-6 nodal centers will be identified as nodal centers in convenient CHC, PHC or taluk hospitals. These centres should be selected in such a way that they are equidistant and takes only minimum travel for people to reach for the examination.

The paramedical workers and Medical Officers (Surgeon / Gynaecologist) in each of these nodal centre along with NGOs, PRIs and other grass root level organisations and multi purpose workers / nurses/ ANMs shall be responsible for conducting cancer detection camps in the areas allotted to them.

The publicity regarding the camp, distribution of the material and advocacy for the programme will be given by these VCCP volunteers, NGOs and by multi purpose workers in the PHC / CHC etc and the sub centre during their routine visits to the houses for other medical surveillance. The health worker and VCCP volunteers will motivate the people in high-risk age group with risky life style and early warning signals to attend cancer detection camps. Those habituated to tobacco and alcohol habit those have warning signs and all married woman between 35 and 60 regarding the camps are in need of CRPE and tests.

The District Medical Officer prepares and circulates a schedule of early cancer detection clinics every 3 months for all nodal centers in advance.

Each nodal centre will conduct one clinic for one hour everyday with the help of surgeon and gynaecologist in the PHC/CHC etc for early detection of cancer among the outpatients who report to the centre. Thus 4 clinics are conducted every week in each nodal centre. Each nodal centre will also conduct one cancer detection camp with the help of the gynaecologist and surgeon and other paramedical person in a scheduled place once in a week. The cytotechnologies and cytotechnician from the District Cancer Centre would come and assist the conduct of such camps.

An average of 15-20 camps will be conducted every week in each district. By following this methodology it will be possible to do early clinical detection (ECD) and tests for most of the high-risk individuals and individuals with warning sign.

One of the major activities contemplated in the district cancer control programme is palliative care in the district. Morphine supply is essential to conduct pain and palliative care programme. To obtain oral morphine there should be permission from the state drugs controller. This permission will be given only to doctors who have undergone a formal training in pain and palliative care for the minimum period of 6 weeks. There should be a separate storage facility for oral morphine and a register for dispensing them. The custody of the morphine shall be with the medical officer dispensing the same. Such arrangements have to be made in the district cancer control centers.

### ***Appointment of Cytotechnologists and Cytotechnicians***

Cytotechnologists and cytotechnicians are highly critical for a successful cancer detection / diagnosis programme. They will be responsible for interpreting all smears and FNAC's initially. The number of cytotechnologists available in the country are very few, so also cytotechnicians. To ensure the availability of cytotechnologists a training programme should be started in all Regional Cancer Centres and major medical colleges that are generate a dozen cytotechnologists annually. Till this time the cytotechnologists should be made available through sharing. They should make use of the service jointly with other district cancer centers. Cytotechnicians can be trained easily by re-orientation

training for regular technicians for about a week. As has been mentioned earlier, the district hospital laboratories have to be upgraded to undertake cytotechnology and histopathy work. The list of equipments for the cytotechnology lab is given as annexure. Procurement of these items will enable upgradation of the laboratory.

The following materials will have to be prepared before the programme is started.

#### IEC Material

1. Cancer risk factors and significance
  - a. Methods to avoid risk factors and modify life styles
  - b. Benefit accrued out of such avoidance and behaviour modification
  - c. To early warning signals of common cancers which when detected at the early stage are curable. The pre-determinant cancers, which fall in to the category, are oral, cervical, breast and larynx.
2. The significance of the early detection in simple and understandable language.
  - a. The result of non-responsiveness on the part of the patient to such warning signals.
  - b. Diagnostic tests to confirm the presence of malignant disease and details of the procedure
  - c. Description of self examination of the oral cavity and breast.
  - d. Description of technical breast examination and mammography
  - e. Description of pap smear and visual inspection of the cervix
  - f. Management of pre-cancerous lesions with leep cryo surgery for cervix.
  - g. Oral pre-cancerous lesions and their management.
3. Treatment: - The IEC material should also contain the principles of cancer treatment, in concise fashion.
4. It should also describe the role of palliative care in the overall cancer control and its need for the community.

The IEC material should give printed in a cheap but attractive fashion with inputs from artistic sources. (Enclosure)

### *Handbook*

Every multipurpose health worker entrusted with the responsibility of district cancer control should be provided with a handbook, which contains the following details.

1. A flip chart that demonstrates the various oral pre-cancerous patients.
2. A flip chart which shows the appearance of various cervical lesions from displacia to CIN with appearances of Lugol's iodine and acetic acid.
3. Pap smear and how to collect pap smear.
4. How to conduct visual inspection.
5. Breast self examination method
6. Technical breast examination method
7. Directions on frequency of pap smear breast examination and visual inspection.
8. Referral policies and direction for referral.

### **District Cancer Centre / Role of medical officer / Routine Working**

In a routine work in the District Cancer Control Programme in the present scheme of things of the DCCP is proposed to be shared by the DCC and the district hospital. All diagnostic services will be extended by a doctor who has received basic training in cancer related physical examination, Pap smear collection, technical breast examination, examination of the oral cavity and maintenance of records. He will also be in charge of primary prevention activities and palliative care.

### **The work in the District Cancer Centre can be divided into 3 parts**

1. Conduct of cancer detection work in the district cancer centre premises. The subjects will be general public who volunteer to come to the District cancer centre for cancer check up. They will undergo physical examination, pap smears, technical breast examination, oral examination and other examination to rule out a cancer on the basis of the presenting symptoms, habits, life styles and age.
2. The second activity of District cancer centre is to provide laboratory support for the Early Cancer Detection Centre, District General hospital, peripheral centres that is Primary Health Care centers, CHC's and cancer detection camps, in areas which come under the district cancer centre.
3. The third major activity of district cancer centre is co-ordination of cancer detection programme by scheduling the programme in such a way that 12 to 16 weekly programme are conducted in the areas under its control every week. The district

cancer centre will be responsible for extending advocacy service in the whole district with the help of voluntary organization, directorate of health service, intersectoral volunteers.

If a mobile clinic service is proposed that will also be the responsibility of the district cancer centre. In the current proposal the field programmes are proposed to conduct by the multi purpose health workers. Even though they will be trained initially, they will need retraining periodically which again will be the responsibility of the district cancer centre.

### **Activity at Primary Health Centre**

Most of the cancer detection work in the district will be carried out under the auspices of the primary health centre. The multipurpose health workers in primary health centre will be responsible for distribution of IEC material to the residents. They will also motivate them to come for examination and facilitate their examination at the cancer detection camps without delay and ensure that appropriate tests are done for the attendees in these camps. They should also ensure that pathological material collected from the patient promptly are sent to district cancer centre and the results of test obtained on time and distributed to the patients who had its tests.

### **Activity at District hospital**

As we had mentioned earlier district hospital will be working in close collaborations with the district cancer centre. The cancer detection facilities will be accessible to the district hospital doctors for use in their patients. The district cancer centre would make use of the hospital specialities not only for diagnostic procedures, which are complicated, but also for surgical treatment of small lesion in the oral cavity, the breast and the cervix. This will ensure curative treatment promptly at the periphery and will avoid unnecessary referrals and transportation of patients to tertiary care hospital. The district hospital will also provide support for palliative care, which again will be mutually useful for the district cancer centre and the district hospital.

### **Guidelines for referral and follow up**

- In the case of breast cancer, FNAC, lumpectomy, and even mastectomy can be undertaken locally in district hospital. For further treatment will have to be carried out in the tertiary care hospital.
- Early cancers of the oral cavity and the pre-cancer of cervix can be treated locally either by surgery or by cryo/leep. They need not possibly be referred to tertiary care hospitals like regional cancer centre, medical colleges etc.
- All adjuvant chemotherapy such as adjuvant therapy of breast and colorectal cancer can also be carried out in the district cancer centre.

- In the case of all curable cancers to be treated with aggressive forms of surgery, radiotherapy or chemotherapy patients have to be referred to tertiary care centres such as medical colleges or regional cancer centres for further expert management.
- All patients who require radiotherapy treatment either as primary or adjuvant should also be referred to tertiary health care centres.
- It should be the endeavor of district cancer centre to provide all palliative care at the district itself as the terminal cancer patient may encounter various difficulties in travel to distant centres.
- It is possible that even in the case of some of the early lesions, there may be confusion about the best possible management. To circumvent such situation there should be a channel of communication (Telemedicine) between the district cancer centre and the tertiary care centre for movement of patients back and forth.

#### **Standard treatment practices for common pre-cancerous condition**

- The commonest pre-cancerous condition, which will be identified by men in the field, will be 1) Oral leukoplakia, 2) Submucous fibrosis. Both are due to the use of tobacco and alcohol. Patient should be advised to stop the habit as soon as they observe such changes in the oral cavity. They should be encouraged to consume a lot of vegetables and fruits, which contain carotinoids. In the case of homogeneous leukoplakia without any ulceration or induration patient can be kept on follow up with advice to take beta carotene or Vitamin A. If there is ulceration or induration in the leukoplakia and if sizeable enbloc excision should be done and sent for histopathological examination. All ulcerated leukoplakias and reddish (erythroplakia) leukoplakias with induration should be biopsied for evidence of cancer and if positive should be treated as cancer.
- Oral submucous fibrosis, unless complicated with malignant confirmation would not require treatment except cessation of habit and use of anti-oxidants. If there is malignant confirmation that area should be excised or cauterized by cryosurgery.

#### **Management of Pre-cancerous lesions of the cervix:-**

1. Dysplastic lesions regress automatically and hence would not require any treatment.
2. 80% of the CIN I lesions revert to normal, hence yearly follow up alone would be required. In case the patient cannot come for regular follow up such lesions may be treated with cryotherapy or leep.
3. CIN 2&3 lesions should not be kept on follow up as they have a very high chance of turning malignant. If they are small lesions and if the size is smaller than that of the cyo-probe, they can be treated with cryo-therapy otherwise they have to be treated with leep.

4. In case of endocervical lesions if the upper margin is visible, leep could be used. If the upper margin cannot be seen hysterectomy is the only option. Again the option is histoactomy when CIN 2&3 lesions cannot be treated with leep or cryosurgery.

### **Follow up**

One of the major functions of the district cancer centre will be follow up of patients who have been treated in the tertiary care centres from that region. Such patients could avoid long travel and loss of financial resources if they could be provided facilities for follow up in the district cancer centre. For entrusting the follow up with the district cancer centre a policy outline has to be prepared.

- All patients in NED status, at the end of 2 years could be referred to their district cancer centres for further evaluation, on the understanding that whenever there is an event (recurrence of metastasis) they will be referred back to the parent institution with out any delay or when doubt exists as to whether something should be done to a patient.
- The district cancer centre should invariably generate a report of such patients who are followed up and forward the same to tertiary care hospital to complete follow up details in the tertiary care centre records. Death of a patient during follow up in district should also be invariably reported to the parent centre.
- Follow up could also be done by telemedicine in which the main centre and district cancer centre could participate as equal partners to the better satisfaction of the patient.

### **Monthly report of activities generated**

Monthly report of activities containing the following details should be generated for evaluation purposes.

1. Number of camps conducted
2. Total number of individuals seen
3. Number of IEC material handed over to the public
4. Number of pap smears taken and number of pap smears reported
5. Number of biopsies done
6. Number of patients advised treatment locally
7. Number of patients referred to other hospitals
8. Number of IP admissions for palliative care

9. Number of admissions for surgical and gynaecological treatment
10. Number of visits made the Primary Health Centre doctors to camps

### **Priorities**

The priorities in a national cancer control programme may be broadly classified as governmental action, resource mobilization, collection of transfer inflation, human training, formulation of strategies, preparation of plans, and formulation of cancer detection clinics.

The priorities for national cancer control programme during the next 5 years will be as follows

#### **1. Government Orders**

##### **a. Administrative sanction**

The first step towards implementation of National Cancer Control Programme is the issue of a Government order which provides administrative sanction, financial sanction, sanction to form a District Cancer Control Society, details of the work to be carried out, co-ordination with other departments, permission to have linkages with NGOs, National and International organisations, importance of involving LA department, PRIs and Education department and empowering the District Collector and other District officials to work for the society independent of governmental constraints but as per government directives and in addition to their normal duties. (Kerala Government Orders, Annexures). (Apart for being an administrative order of the Government department it should also reflect the Science of Cancer Control)

##### **b. Health system changes**

Health system changes to make health promotion activities in the public and professional education feasible through the existing health delivery system (Health system modification as in Kerala Government Order No.....)

##### **c. Cancer control plan**

Preparation of a cancer control plan for the state and for the district if it is proposed to be implemented at the district level. In this plan the resources have to be identified correctly the method of organizing the resources, direct products of the programme and the impact of the programme on the people have to be mentioned clearly. Such documentation is very important for the understanding of the project managers who may not always be public health personnel.

**d. Cancer technical group**

A cancer technical group has to be constituted with senior technical personnel which will be responsible for the preparation of the project document and human resource development.

**e. Formation of District Cancer Control Societies**

Decision on the implementing agency decided quite in advance to entrust the work to a credible implementer. There are a few models which have been tried in various countries (1) RCC (2) RCC in combination with government (3) Private agencies (4) District hospitals (5) District cancer society in linkage with district hospital but as a autonomous society. The last appears to be the most practical option as District level cancer control programme with the District Collector as Chairman operating with a district cancer society. If cancer control is to be successful it has to reach the people. The best channel to take it to the periphery and to the people is the district level administration as it has experience with several such programmes. But if the service delivery is kept purely within the government domain it may not work because of various bureaucratic constraints. Hence with active participation of district level departmental machinery (general administration health, local administration, education and social welfare) and participation of Panchayathi Raj institutions and people's representatives, a district level society has to be formed with the Collector as Chairman, DMO as vice chairman and the Medical Officer of the District Cancer Programme as secretary. Such a society will strengthen the cancer control effort by improving the capacity and expansion of infrastructure. This society will finally become the channel for delivering cancer control to the periphery in a sustained manner and institutionalize the same. The organization formed by the society for its activities will be called the District Cancer Centre (DCC). Hopefully all districts in India will have one DCC each. Early cancer detection centre (ECDC) is a physical facility to verify the suspicions of the patient or the field worker through physical examination procedures and laboratory tests which include Pathology, Pap smear, endoscopy, CBE, BSE and FNAC.

**f. Formation of Community oncology departments**

Community oncology departments should be mandatorily started in all regional cancer centres and oncology wings of medical colleges. They will be empowered to prepare DCCPs, their implementation and monitoring on behalf of the RCCs. Pain relief and palliative care units have to be started in all district cancer centres at the district level.

**g. Cancer registries**

To procure cancer incidence and mortality data, a cancer registry programme should be started by all RCCS in an advancing rural area. Rural registries have to be started because most of the registries in India have now located in metropolitan area and have only metropolitan cancer data.

**h. Training of cytotechnologists**

Cytotechnologists for the district cancer control programme is the most essential for the detection and diagnosis of the cancer is required in large numbers. All accredited RCC should be mandated to train at least 5 cytotechnologists every year and all medical colleges should appoint cytotechnologists every year through a grant of Rs. 1 lakh per year.

- 2. Identification and sensitization of facilitators and implementing agencies** including political and bureaucratic personnel. Sufficient sensitization programmes have to be done among them so that their cooperation can be ensured.

**3. Sensitization of the general public**

The general public is the final beneficiaries of the programme unless they are educated in a convincing passion it is possible that none of the enabling factors will be generated in the community.

**4. Organisation of district early cancer detection centre**

District early cancer detection centre will provide the clinical and the laboratory support for early detection of cancer in an accessible and equitable fashion in the district and will also provide surgical services for early cancers and palliative care. (Details in Annexure)

**5. Human Resource Development**

Personnel required for cancer control are

1. Key trainers
2. Medical Personnel
  - a. General Duty Doctors
  - b. Surgeons
  - c. Gynaecologists
  - d. Nurses

3. Technical Personnel
  - a. Cytotechnologists
  - b. Cytotechnicians
  - c. Radiology technicians
  - d. Laboratory Personnel
4. Non-governmental agency volunteers
5. Village level cancer control volunteers
6. Multi sectoral Personnel

The Medical personnel required for District Cancer Control Programme and the subjects to be taught is summarized below.

The main focus of their training is

- Epidemiology of Cancer
- Prevention and early detection of Cancer including self-examination methods
- Detection of Pre-Cancer
- Management of Cancer patient including Diagnosis and Therapy
- About palliative care and cancer pain relief measures.

#### **ACTIVITY, AGENCIES AND TIMELINES TO CARRY OUT THE PROPOSED ACTIVITY**

	<b>Activity</b>	<b>Time Frame</b>	<b>Implementing agency</b>
1.	Formation of a District Cancer Society (DCS), the District Collector as Chairman with representation for health department, PRI, other government departments, people's representatives and NGOs.	0-3 months	Government
2.	Formation of a cancer technical group of professionals from RCC or Oncology wing of Medical Colleges.	0-3 months	Government
3.	Preparation of educational material with advice from CTG	0-3 months	District Cancer Society
4.	Sensitization programme for administrators, programme managers and politicians	0-3 months	Cancer Technical Group – Regional Cancer Centre – Oncology wing of Medical College
5.	Sensitization programme for the public	0-3 months	Cancer Technical Group – Regional Cancer Centre – Oncology wing of Medical College

6.	Selection of trainers and their training in RCC or Oncology wing of medical college	0-3 months	Government
7.	Procurement of space for the District Centre (Rented building close to the District Hospital)	0-3 months	DCS
8.	Professional training of a. Health workers (Risk factors of cancer. Early warning signals, oral screening, visual examination, CBE, referral guidelines, monthly reporting) b. Nurses and doctors (CRPE Visual examination, pap smear collection, FNAC referral guidelines, leep, cryo) c. Surgeons and Gynaecologists (Visual examination, pap smear, FNAC, Leep cryo, minor forms of cancer surgery referral guidelines, trainers, monthly reporting)	3-9 months 3-9 months 3-9 months	District Cancer Centre RCC / Oncology wing of medical college / DCC RCC / Oncology wing of medical college
9.	Procurement of equipments for cytology lab and other administrative and clinical functions (Annexure)	3-9 months	DCS
10.	Inauguration of the District Cancer Centre	9 <sup>th</sup> month	DCS
11.	Scheduling of clinics a. One clinic daily for 4 days of the week from 12 noon to 1pm at each PHC b. One peripheral clinic as per schedule with 3 weeks advance notice and after publicity of early warning signals to the community weekly by the PHC doctors (There will be 15-20 clinics at the periphery every week in addition to the regular clinic in the DCC everyday)	10-60 months	DMO
12.	Arrangements for collection of cytological material and its transfer to the District Centre and reporting on a weekly basis	9 <sup>th</sup> month	DCS
13.	Transfer of reports to concerned individuals and appropriate referrals for follow up and treatment	9-60 months	DCS / PHC
14.	Initiation of follow up clinics for cancer patients treated in tertiary referral centres	12 months	RCC / Oncology wing of medical colleges / DCS
15.	There will be yearly repeat training programmes for the benefit of new staff in the PHCs and the DHS	I year, II year, IV year	DCS
16.	Evaluation of the programme course corrections on the basis of criteria laid down in the main text will be carried out at the end of second year and fourth year and finally in the fifth year by the CTG and with the help of peer reviewers – management committee	Year II / IV / V	CTG / Management committee

## HUMAN RESOURCES NEEDED FOR ACHIEVING THE IDENTIFIED OBJECTIVES

Personnel required for cancer control are

1. Key trainers
2. Medical Personnel
  - a. General Duty Doctors
  - b. Surgeons
  - c. Gynaecologists
  - d. Nurses
3. Technical Personnel
  - e. Cytotechnologists
  - f. Cytotechnicians
  - g. Radiology technicians
  - h. Laboratory Personnel
4. Non-governmental agency volunteers
5. Village level cancer control volunteers
6. Multi sectoral Personnel

### ***Key Trainers***

Even though most of the medical teachers have knowledge about cancer their orientation is mostly in the diagnosis and treatment of cancer. They may not have knowledge regarding the risk factors, evolution of the disease, early detection and screening, lower individual morality of treatment and palliative care. Clear concepts on the above are absolutely essential for successful conduct of the National Cancer Control Programme of which District Cancer Control is the first step. The following categories of personnel working in the Medical Colleges are suitable to be trained as trainers.

1. Surgical Specialities
2. Gynaecologists
3. People who are inclined to such public health activities such as NCCP from any clinical department or non-clinical department

4. Dentists
5. Bio-statisticians and
6. Staff of the community medicine department.

The main focus of the training of medical personnel is

- Epidemicology of Cancer
- Prevention and early detection of Cancer including self-examination methods
- Detection of Pre-Cancer
- Management of Cancer patient including Diagnosis and Therapy
- About palliative care and cancer pain relief measures.

Early cancer detection centre (ECDC) is a physical facility to verify the suspicious of the patient or the field worker through physical examination procedures and laboratory tests which include Cytology, Pathology, Pap smear, endoscopy, CBE, BSE and FNAC.

Staff in each cancer detection centre will be

***The Staff of District Cancer Society***

Medical Officer	- 1
Cytotechnologist	- 1
Cytotechnician	- 1
Medical Records Officer and Statistician	- 1
Nurse	- 1
Cleaners	- 2
Volunteers for NGO & Local organisation	- 2

(free service)

**EQUIPMENTS REQUIRED FOR EARLY CANCER DETECTION CENTRE**

Head and Neck Examination Unit

1.	I.D.L. Set with head mirror and source lamp	:	1 set
2.	Tongue depressor (metal)	:	6 Nos.
3.	Punch biopsy forceps	:	6 Nos.

- |     |   |   |             |
|-----|---|---|-------------|
| 4.  | Auroscope                                       | : | 2 Nos.      |
| 5.  | Nasal specula                                   | : | 2 Nos.      |
| 6.  | Hypodermic Needle no. 19-24                     | : | 2 Doz. Each |
| 7.  | Disposable syringes 10 cc                       | : | 3 Nos.      |
| 8.  | Dental chair                                    | : | 1 No.       |
| 9.  | Mouth Gag                                       | : | 2 Nos.      |
| 10. | Curved scissor 4" to 7"                         | : | 2 Nos.      |
| 11. | Tissue forceps                                  | : | 2 Nos.      |
| 12. | Tweezers  | : | 2 Nos.      |
| 13. | Chromium needles curved with edge for stitching | : | 2 Nos.      |

#### **General Examination Unit**

- |     |                           |   |        |
|-----|---------------------------|---|--------|
| 14. | General examination couch | : | 2 Nos. |
| 15. | Sigmoidoscope             | : | 2 Nos. |
| 16. | Protoscope                | : | 2 Nos. |
| 17. | Portable spot light       | : | 2 Nos. |

#### **Imaging Unit**

- |     |                                    |   |       |
|-----|------------------------------------|---|-------|
| 18. | X-Ray machine 1000 MA with II & IV | : | 1 No. |
| 19. | Mammogram                          | : | 1 No. |

#### **Desirable**

- |     |                     |   |       |
|-----|---------------------|---|-------|
| 20. | Ultra Sound scanner | ; | 1 No. |
|-----|---------------------|---|-------|

#### **Endoscopic Units**

- |     |                                  |
|-----|----------------------------------|
| 21. | Fiberoptic Endoscopes            |
| 22. | Bronchoscope                     |
| 23. | Oesophagoscope                   |
| 24. | Gastroscope with all accessories |

25. Colonoscope
26. Laparoscope

### **Cytology, Clinical pathology and haematology Laboratory**

- |     |  |   |         |
|-----|--|---|---------|
| 1.  | Speculum (Self retaining) Cuscous                                  | : | 12 Nos. |
| 2.  | Biopsy Forceps   | : | 3 Nos.  |
| 3.  | Sims Bivalve speculum  | : | 1 Nos.  |
| 4.  | Sponge holding forceps   | : | 12 Nos. |
| 5.  | Alice forceps  | : | 6 Nos.  |
| 6.  | Sterilisers  | : | 2 Nos.  |
| 7.  | Slide tray (metal/ card board) for 20 slides                       | : | 12 Nos. |
| 8.  | Slide box for holding 100 slides                                   | : | 12 Nos. |
| 9.  | Slide box for holding 50 slides                                    | : | 6 Nos.  |
| 10. | Spirit Lamp  | : | 4 Nos.  |
| 11. | Kidney tray (medium size)  | : | 12 Nos. |
| 12. | Interval timer with alarm  | : | 1 No.   |
| 13. | Chemical balance   | : | 1 No.   |
| 14. | Centrifuge   | : | 1 o.    |
| 15. | Polythene box (bread box) to carry the slide carrier for 50 slides | : | 12 Nos. |
| 16. | Hot plate  | : | 1 No.   |
| 17. | Height and weight measuring equipment                              | : | 1 No.   |
| 18. | Haemoglobinometer Sahlis type (Complete set)                       | : | 2 Nos.  |
| 19. | Haemoglobin diluting tubes   | : | 12 Nos. |
| 20. | Haemoglobinometer pipette  | : | 6 Nos.  |
| 21. | Pipette with R.T (Rubber teat)                                     | : | 6 Nos.  |
| 22. | Counting chamber improved neubauer                                 | : | 2 Nos.  |
| 23. | Counting chamber cover slip  | : | 12 Nos. |

## REQUIREMENTS FOR SETTING UP CYTOLOGY LABORATORY

### Space

Reception

Laboratory 20feet x 12 feet

Examination Room (10ft x 10ft)

Reporting / Office Room (10ft x 10ft)

Toilet

### Furniture

mea

Work bench with reagent rack 1 No.

(cupboards and drawers on both ends) (8ft x 4ft, height – 2.5ft)

Small table (4ft x 3ft) 1 No.

Office Table 1 No.

Revolving Chair 1 No.

Plastic Chair 3 Nos.

Plastic Stool 2 Nos.

### Laboratory equipments

Microscope (Binocular – Leica DMLS) 1 No.

Centrifuge (16tubes capacity – Remi) 1 No.

Cytospin 4 – Shandon 1 No.

Refrigerator 1 No.

Incubator 1 No.

Autostainer – Linear (Leica ST 4040) / revolving 1 No.

Chemical Balance (Keroy) 1 No.

Stainless steel Electrical Sterilizer 1 No.

Distilled water unit 1 No.

Slide filling cabinet (10,000 capacity – Bestan)	1 No.
Speculum Cuscos	Large 4 Nos.
Medium	6 Nos.
Small	2 Nos.
Bivalve vaginal speculum sims      Medium	2 Nos.
Kidney Tray (Stainless steel)	2 Nos.
Metal Tray (Stainless steel)	2 Nos.
Punch holding forceps (stainless steel)	1 No.
Forceps (stainless steel)	2 Nos.
Gynaecological couch (with step and focusing lamp)	1 no.
Slide tray (Metallic tray, 20 slides capacity)	5 Nos
Electric Heater (Hot coil)	1 No.

### Chemicals

Haematoxilin Powder	(Himedia RM 236)	25gms
OG 6 certified	(Himedia RM 395)	25gms
Eosin yellow water soluble certified	(Himedia RM 115)	25gms
Light green SF (Yellowish) certified	(Himedia RM 386)	25gms
Phloxine B Certified	(Himedia RM 835)	25gms
Phosphotungstic Acid pure 100gms	(Himedia RM 398)	
Aluminium Ammonium Sulphate AR 500gms	(Himedia RM 092)	2 x
Sodium Iodate (Extra pure) 100gms	(Himedia RM 1084)	
Xylene Extra pure	(Merck) 4 x 2.5lit.	
DPX mountant	(Merck) 500ml.	
HCL	500ml	
Isopropyl Alcohol	10 x 2.5 lit	

### Consumable Itmes

Ayers spatula (Wooden)	500 Nos.
Disposable tongue depressor	100nos.
Disposable syringe 10ml	250 nos.
Disposable Needle 22g	250 Nos.
Gloves (Rubber 6 & 7)	100 Nos.
Gloves (Rubber Disposable)	100 Nos.
Koplin Jar (Plastic)	30 Nos.
Glass staining jar with lid (20 Slides carrier)	30 Nos.
Slide carrier (20 slides capacity stainless steel)	5 Nos.
Bottle Brush	2 Nos.
Microslides (Blue star PIC I)	25 Box
Micro cover glass (Blue Star 22x30)	20x10 gm
Slide boxes (Plastic 100 slides)	3 Nos.
Rubber sheet (for Gynaec couch)	1 No.
Diamond glass marking pencil	3 Nos.
Filter paper Whatmann No.1	5 Sheet
Blotting paper	50 sheets

### Glasswares

Centrifuge tube	(Borosil)	1 dozen
Test tube	(Borosil)	3 dozen
Conical flask 250ml	(Borosil)	1 No.
Conical flask 500ml	(Borosil)	1 No.
Conical flash 50ml	(Borosil)	1 No.
Beaker 500ml	(Borosil)	1 No.
Round bottom flask 1000ml	(Borosil)	1 No.

Measuring Cylinder 500ml	(Borosil)	1 No.
Measuring cylinder 500ml	(Borosil)	1 No.
Measuring cylinder 1000ml	(Borosil)	1 No.
Measuring cylinder 100ml	(Borosil)	1 No.
Pipette 10ml	(Borosil)	1 No.
Pipette 1ml	(Borosil)	1 No.
Funnel large	(Borosil)	1 No.
Funnel Medium	(Borosil)	2 Nos.

### Stationery Items

Cotton	Paper	Towels	Bucket (plastic)	Office registers
Gauze	Performa	Pillow	Cup	Writing pad
Stapler	Report form	Bed sheet	Dust bin (plastic)	

### FINANCIAL OUTLAY

The expenditure to be incurred for implementation of the National Task Force Report on cancer control could be broadly classified as expenditure for achieving the general targets of the programme and expenditure to be incurred for specific activities. The general targets are human resource development, development of community oncology departments, organization of cancer registries, quit tobacco programmes, enforcement of anti tobacco legislation, extensive publicity of health promotion messages through electronic media and preparation of IEC material. The total expenditure may vary depending upon the coverage of the population and the extent of penetration of the programme. At present no estimate is being proposed in this document. Detailed estimate for the next 5 years for the District Cancer Society is given below.

Mediu

### Capital Expenditure

Early Cancer Detection Clinic	Rs.	10,00,000
Cytopathology Facilities	Rs.	3,00,000
Histopathology facilities	Rs.	5,00,000
Colposcope	Rs.	1,50,000

Ultra Sound Scanner (optional)	Rs.	15,00,000
Audio – visual facilities	Rs.	1,50,000
Computer / Printer / UPS	Rs.	1,00,000
Furniture	Rs.	7,00,000
Building modification	Rs.	6,00,000
<b>Total Rs.</b>		<b>50,00,000</b>
<b>Recurring expenditure / year:</b>		
Staff Salaries		
Cytotechnologist	Rs.	1,20,000
Cytotechnician	Rs.	60,000
Statistical Assistant	Rs.	50,000
Travel	Rs.	1,50,000
Consumables	Rs.	50,000
Stationary / Printing	Rs.	50,000
Consultancy	Rs.	50,000
Overheads	Rs.	50,000
<b>Total Rs.</b>		<b>7,80,000</b>
Total Non recurring	Rs.	50,00,000
Total recurring for five years	Rs.	25,00,000
<b>Grant Total</b>	<b>Rs.</b>	<b>75,00,000</b>